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CARE AND
MANAGEMENT OF
DAIRY BULLS



GOOD DAIRY BULLS are worth so much for building up the production of dairy herds that they should be properly taken care of.

Because of their temperament, dairy bulls are often difficult to handle; consequently they do not always receive proper care, exercise, and management.

Many bulls, because they are not properly managed, fail to give best results as herd sires.

This bulletin tells briefly how to handle dairy bulls safely, and how to keep them in good condition, and also discusses numerous problems bearing on their care and management.

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CARE AND MANAGEMENT OF DAIRY BULLS.

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IMPORTANCE OF PROPER CARE.

GOOD SIRES are absolutely necessary to dairymen, as it is largely through the use of good sires that high-producing herds are built up.

Because of the nervous temperament and great strength of mature bulls, they need to be handled with care. Many valuable bulls are prematurely lost for service because of poor care and poor management.

Newspapers and farm papers frequently tell of persons being injured, or killed, by bulls, as a result of improper equipment or wrong handling. Because of such occurrences, dairy bulls have come to be looked on in some cases as necessary evils. This attitude often means neglect in such essentials as feeding, exercise, removal of manure from pens, and various other details of care.

According to the last census, the total number of dairy bulls 1 year old or older, in the United States, was 772,320; about one farm in every six having dairy cattle kept a bull. Some of these were good bulls, while many of them were not. One of the most important objects of the dairyman should be to have the services of a well-bred bull. Then he should be given the care and management that will insure the greatest profit from him.

FEEDING.

Bull calves to be raised for breeding purposes should be fed and handled much the same as heifers.¹ If skim milk is fed, it is desir-

¹ Farmers' Bulletin No. 1723, Feeding, Care, and Management of Young Dairy Stock.

able to give the bull calves, after they are 3 months of age, a little more grain than the heifers get, and to delay weaning to 8 or 10 months. As a rule, bulls grow somewhat faster than heifers, and this feeding enables them to attain their best size and development. Undersized bulls are seldom looked upon with favor.

A bull that has an inheritance for large size, but is small because of improper development resulting from poor feeding, does not transmit small size to his progeny. It is difficult, however, for one unfamiliar with the ancestry of the bull to determine whether his small size is due to heredity or to poor development.

Bulls should be of sufficient size and maturity for light service at 10 or 12 months of age. From this time on, the grain may be much the same as that given the cows in milk. Some breeders feed their regular herd mixture. Bulls should be fed enough to keep them in a vigorous physical condition, but not too fat, because high finish has a tendency to make them sluggish. This is especially true of old bulls, which often have a tendency to become weak on their legs, owing to excessive weight. In this condition, they hesitate to mount and therefore are slow breeders. Golden Glow's Chief, 61460, the great Jersey sire, retained his vigor until his death at 15 or 16 years of age. He became so weakened in his hind legs, however, due to his excessive weight, during the last two or three years of his life, that he was unable to mount cows. If bulls become too fat, cut down the grain ration, and give regular exercise.

The amount of grain to feed daily varies from 4 to 10 pounds, depending on the size and condition of the animal and the kind of roughage. The following grain mixtures have been used with success:

Mixture No. 1.	Pounds.	Mixture No. 2.	Pounds.
Ground corn-----	300	Ground oats-----	300
Ground oats-----	200	Wheat bran-----	200
Wheat bran-----	200	Ground corn or barley-----	100
Linseed meal-----	100	Linseed meal-----	100

Ground oats are considered especially valuable for bulls. Cottonseed meal is not usually regarded with favor, especially when fed in large amounts. Some breeders think it causes impotency.

The legume hays—alfalfa, clover, vetches, soy beans, cowpeas—are excellent roughages, and should be fed liberally if possible. They are high in protein and mineral matter, especially alfalfa, and are valuable for keeping heavily used bulls in condition. Bulls should be fed 10 to 20 pounds of these legume hays a day, depending on their size and condition. If nonleguminous roughages are fed—timothy hay, prairie hay, corn silage, fodder, or stover—feed a grain mixture higher in protein.

On some farms the bulls are given the spoiled or musty hay, or waste feed, left by other animals. This is poor practice. It is just as necessary to feed the bulls properly as it is the cows.

Breeders differ as to the advisability of feeding silage. Some maintain that a considerable amount of silage is likely to lessen the vigor of a bull, and may make him sterile. Others feed silage in large quantities and report no undesirable results. So far as experimental work shows, it is probable that silage does not have any direct effect on the breeding powers. Large amounts of silage, or other extremely bulky feeds, may have a tendency to distend the

paunch so that the bull becomes too heavy on his feet. From 10 to 15 pounds of silage a day, with other roughage, can be fed safely without impairing the usefulness of the animal.

Dairy bulls should have plenty of water. This matter is often neglected, especially when there is not a constant supply in the stall or pen and when the bull is difficult to handle. A bull should be watered at least once a day during the winter, and twice a day during the summer.

Occasionally the question is asked whether the feed has an influence on the number or activity of the sperm cells of a bull. If there is any effect, it is probably indirect, and depends on the physical condition of the bull rather than directly on the feed.

HOUSING AND EXERCISE.

If bulls are to be profitable they must be properly housed, and they must get exercise. It is poor practice to compel a bull to stand in a small stall constantly without exercise; it may ruin him as a breeder, and make him vicious.

The main things to be considered in providing quarters for bulls are: (1) Safety and ease in handling; (2) comfortable stable or shed for protection from weather; (3) provision for exercise.

STABLING.

A shed or barn opening into a paddock or yard is a practical shelter for a bull. The shed may be left open on the south side to make it light and dry, but closed on the other sides to keep out cold winds and storms. A certain amount of outdoor life is beneficial, although a bull does not appear to best advantage when kept in the open, because of the heavy coat of hair he puts on in cold weather. In a cold climate, or extremely cold seasons, it is well to have a closed barn. The barn should be well ventilated and well lighted. Either a shed or a barn should be large enough to allow the animal to move around freely. A strong stanchion or tie, and a feed manger are advisable. A feeding alley in front is a good feature, so that the handler will not have to enter the pen to feed. If the shed opens into a yard, make a gate for the opening. By driving the animal into the pen and closing the gate, a man can work in the shed without danger from the bull.

The tie, or stanchion, may be made of heavy planks, or iron. With the bull in the stanchion, one can work in the pen with little risk. Often a rope is run from the feed alley through a pulley and attached to the stanchion. If feed is placed in the manger, the bull will put his head through the stanchion, and the stanchion can then be shut with the rope.

Some breeders have a box stall in the main barn, with a door opening into a yard. The advantages of this plan are that the bull can see the other cattle and can be fed and cared for with the rest of the herd. The box stall should be built strong, preferably of iron pipes set in concrete. It is a good idea to have stanchion, manger, and water supply in the stall. Take particular care to see that the catches and locks on doors and gates are such that the bull can not open them with his head or horns.

SAFE-KEEPER BULL PEN.

A pen known as the "safe-keeper" bull pen has been designed by the United States Department of Agriculture, primarily for handling unruly and vicious bulls. (Fig. 1.) This pen includes a shed with stanchion and manger, the latter being reached from a feeding alley in front. A sliding door, opening into a yard, is operated with ropes from the feeding alley, so that the bull can be shut in the adjoining yard while the stable is being cleaned. A gate and a breeding rack are so placed in the yard that it is unnecessary to

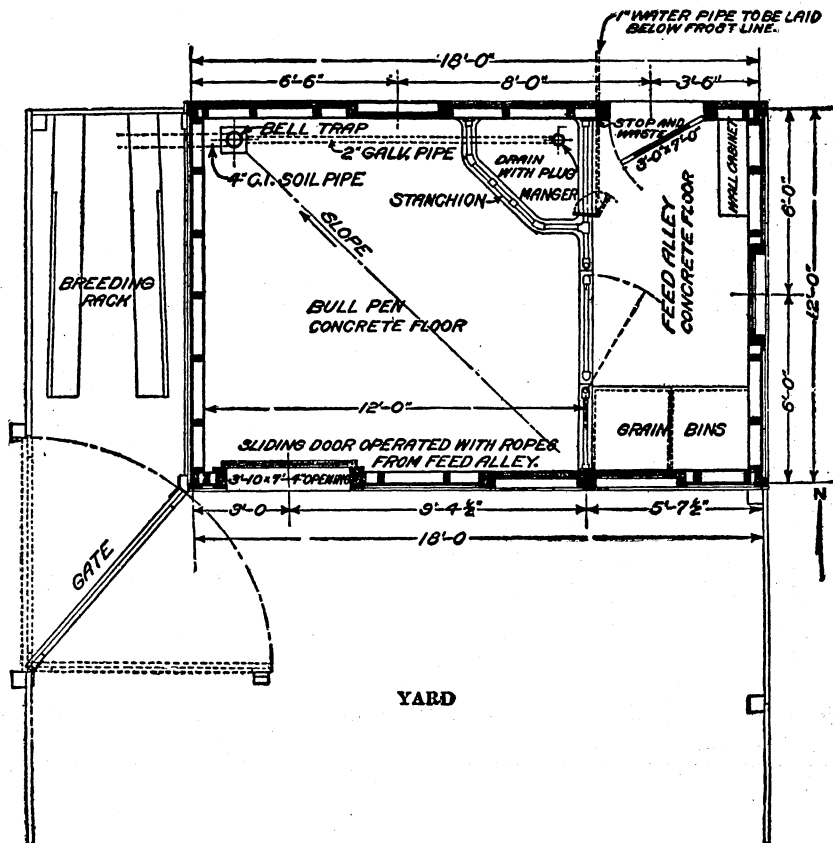


FIG. 1.—Plan of "safe-keeper" bull pen.

go into the yard where the bull is. The pen may be in a detached building, or in a corner of the barn. Breeders have used various modifications of this plan with success and have kept many valuable sires that otherwise would have had to be disposed of.²

Bulls should have a clean, well-drained yard or paddock for exercise, in connection with the barn or pen. Experience shows that exercise plays an important part in keeping a bull vigorous and healthy.

² Plans and bills of material for the safe-keeper bull pen will be sent free of charge by the Bureau of Agricultural Engineering, United States Department of Agriculture, Washington, D. C., upon request.

FENCING.

Under no condition should a bull be placed in a yard or pasture that does not have a substantial fence. After a bull has once broken through a fence, it is much harder to keep him in. The fence should be 5 to 6 feet high or too high for him to jump over. Solid fences—those that obstruct his view—are not advisable, except possibly with extremely vicious bulls. Bulls usually are more contented if they can see beyond the fence. If the fence is solid, it is a good plan to make a mound of earth near the center of the inclosure high enough so the bull can see what is going on outside. This method keeps him away from the fence, and he is not so anxious to get out.

The fencing materials most commonly used are woven wire, barbed wire, planks, rails, and iron pipe. If barbed wire is used put the posts not more than 8 to 10 feet apart, stretch the wire tight, and space the strands 8 to 12 inches apart. Five-foot heavy woven-wire

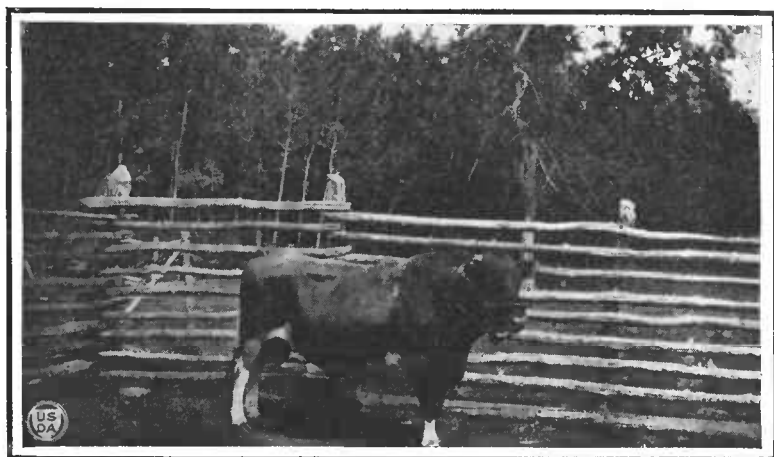


FIG. 2.—A cheap and practical pole fence. The poles were cut in the timber beyond.

fencing, with one or two strands of barbed wire on top, makes a good, durable fence.

A pole or rail fence is practical and cheap on farms where a man has the material to use.

Set wooden posts 8 feet apart, preferably in concrete. Cut the poles to right length, with enough room at each end to nail to the posts. Chop a flat place at each end of the poles so they can be nailed solidly against the posts. (See fig. 2.) Space the lines of poles 8 to 12 inches apart. Important: Nail poles to posts from what will be the inside of the pen, to prevent the bull's forcing the nails out by pushing against the poles. If poles or rails are not available, 2 by 6 inch planks may be used. (See fig. 3.)

Another type of fence often used consists of reinforced-concrete posts set 8 to 10 feet apart, with iron pipe for rails. (See fig. 6.) The rails are run through holes in the posts. If concrete posts are used, they must be strongly reinforced. While this type of fence

may be expensive, it is strong and substantial and will last a long time.

Danger and inconvenience will be avoided if all gates are strong, and equipped with reliable locks and catches.

MEANS OF EXERCISE.

The importance of exercise is often underestimated. Many bulls, after their value has been proved, are found to be sterile or slow breeders, due largely to close confinement and lack of activity.

The pen should be large enough to permit the bull to take plenty of exercise. But many bulls, even when they have a roomy yard, are inclined to be lazy and sluggish and do not stir about enough. As regular exercise helps materially to keep bulls in vigorous condition, it may be necessary to force the sluggish bull to take exercise, and various methods have been devised for the purpose.



FIG. 3.—Fence of 2 by 6 inch planks on heavy posts.

One way to make bulls take exercise is to yoke them up and work them like oxen. Where there is only one bull, he can be hitched and worked with a horse. Bulls can be used to haul manure, plow, pull stumps, and do various other jobs. Thus the bull not only gets exercise, but at the same time does some farm work. (See fig. 4.)

The treadmill is used in some cases (fig. 5), but is not always satisfactory, because the bull sometimes refuses to walk on the tread unless he is watched, and he may also learn various tricks to stop the mill. Then, too, if the incline is wet or slippery, the animal may fall and suffer injury.

In an experiment at the Washington State Agricultural College, on the use of the treadmill,³ it was found that this sort of exercise,

³ Washington Agricultural Experiment Station, Bulletin No. 158.

in the case of a slow-breeding bull, shortened the time required for service. Also, the activity and length of life of the spermatozoa were increased.



FIG. 4.—Two bulls hitched to plow to exercise them.

If two or more bulls are kept, they may be turned out together. This usually results in their getting considerable exercise, but they may injure one another, especially if they have horns. There are cases on record of valuable sires being injured to such an extent as to make them useless as breeding animals. If a young bull is turned in with an older one, he probably will be active enough to keep out of the way. Having the pen, or lot, large enough, so it would be

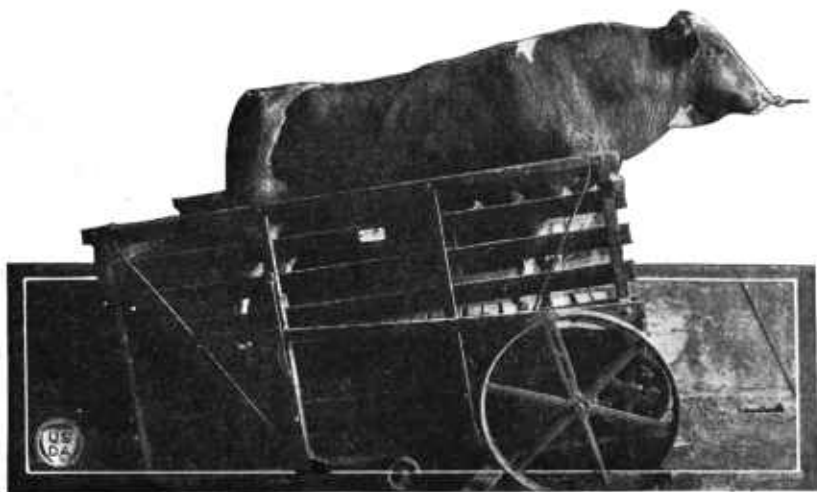


FIG. 5.—Exercising a bull in a treadmill.

hard for one bull to corner the other, lessens the danger of the bulls injuring each other. The owner should use his own judgment as to the merits of this plan. (See fig. 6.)

Bulls may be induced to exercise themselves with an empty barrel or keg by bunting or rolling it around the pen. The keg may be left on the ground, or be hung by a rope or chain, low enough so

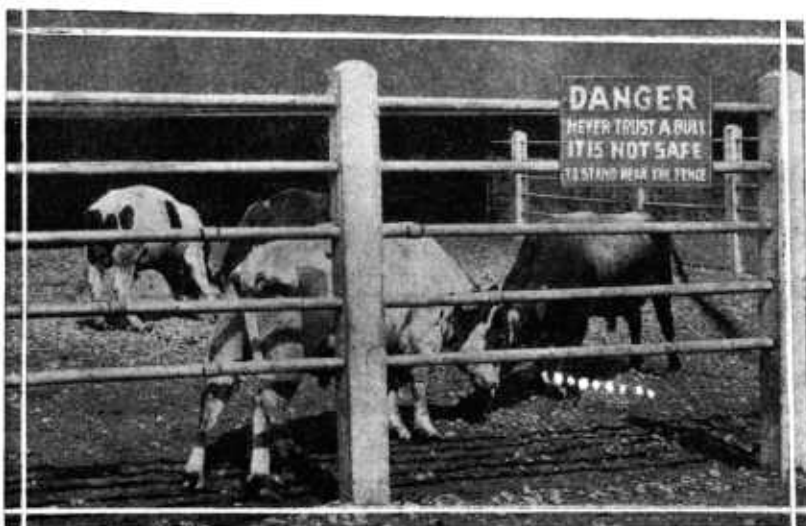


FIG. 6.—Bulls in same pen getting exercise by playing. The owner must use his judgment as to the merits of this plan.

the bull can butt it with his head; or, a block of wood, with the corners rounded, will serve the purpose. Some bulls spend hours playing with contrivances of this sort, while others pay little attention to them. (See fig. 7.)

When an exercise pen is not available, it is a common practice to tie the bull to a ring which slides on a suspended wire or cable. (See fig. 8.) The cable should be strong, and 75 to 100 feet long. A five-eighths inch iron ring, with swivel link, is good. The cable should be high enough so the bull can not get his feet over the lead chain. Twelve to fifteen feet of lead chain should be all right.



FIG. 7.—Exercising: Bull playing with a suspended block of wood. A strong, empty keg may also be used.

A revolving sweep will give the bull some exercise, if he will use it. These schemes, however, are not always successful, because sometimes when the bull gets used to the devices he will lie down and take but little exercise.

Bulls are sometimes staked out or tied to a weight that can be dragged around from place to place while grazing. If this plan is used, it is well to put the chain around the horns and on down through the ring in his nose. It is a good plan to wrap the chain with tape or cloth, or inclose it in a short piece of garden hose, so as not to rub off the hair and skin.

If there is no other method of exercise suitable, the bull can be led around a few minutes a day, but this takes considerable time and there is an element of danger.

SERVICE.

Bull calves should be separated from the heifers before they are 6 months old, as they may begin then to get heifers in calf.

Bulls are old enough for light service at 10 or 12 months of age, but until they are 18 months old they should be bred to only a few cows. The bull should not serve more than four or five cows before he is a year old, but after that the number of services may gradually be increased. At 2 years of age, during the breeding season, he should be able to serve four or five cows a week, without injury. It is not advisable to allow a mature bull to serve more than two cows in one day, nor more than 75 or 80 during the year. Cases are on record in which bulls have sired a considerably larger number of calves in a year's time, but such is not advisable as a general practice, because in most herds the breeding is not evenly distributed throughout the year.



FIG. 8.—Exercising: Bull tied to a suspended cable, which allows considerable exercise.

In breeding cows, one service or leap is usually satisfactory, except possibly in the case of a heifer bred for the first time, when two services may be advisable. Owing to the excessive weight of a heavy bull, the heifers or cows may fall, or it may be difficult to get them to stand. In this event a breeding rack may be helpful.

The breeding rack consists of a stall and a stanchion into which the cow is led for breeding.⁴ On each side is an incline with cleats on which the bull rests his feet when he mounts for service. The weight of the bull is on the rack and not on the cow. Some are so constructed that the stanchion can be moved forward or backward, according to the size of the cow being bred. (See fig. 9.)

If a young bull is being bred to a large cow, it is often difficult for him to mount high enough for service. Standing the cow in a shallow pit will materially help him.

In general, the bull should never be allowed to run with the herd. If he does, some heifers will undoubtedly be bred too young. In

⁴ Plans and bills of material for a breeding rack will be furnished free of charge by the Bureau of Agricultural Engineering, United States Department of Agriculture, Washington, D. C., upon request.

addition, there is no accurate method of telling whether the cows are safely with calf, and those that have breeding trouble are not quickly discovered. Then, too, there is no record of when to expect calves and prepare the cows for calving. There is also a tendency for the bull to waste his vitality and energy by serving the same cow several times. A bull allowed to run in pasture with the herd usually gets ample exercise, however, which may be important enough to offset the vitality he may waste in serving too often.

KEEPING RECORDS.

A breeding record of the bull should be kept. It enables the breeder to know when to expect calves. With purebred animals, it is often necessary to know the exact service date.

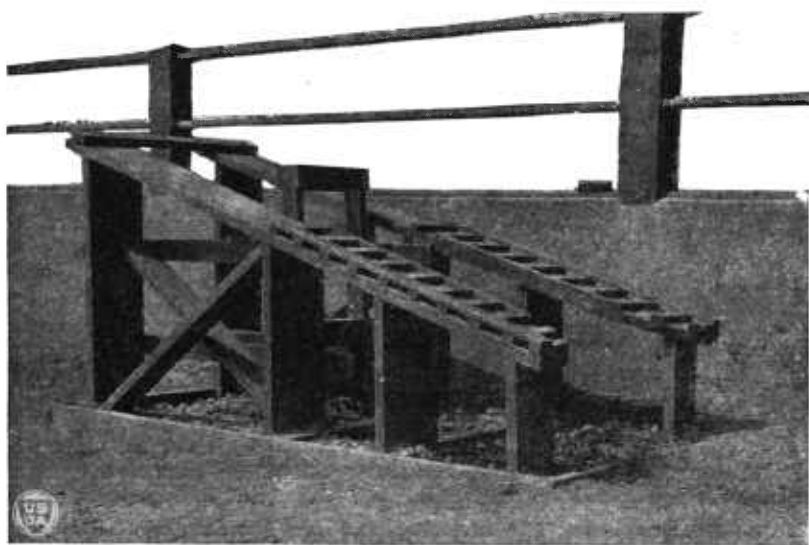


FIG. 9.—Breeding rack.

The system of record keeping need not be elaborate. The following is a satisfactory and practical form:

Name or number of cow.	Date bred.			Date due.	Date calved.	Bull used.	Sex of calf.	Remarks.
	1	2	3					
Roan.....	Feb. 17			Nov. 26	Nov. 28	Prince....	Male.....	Sold for veal.
Rose.....	Jan. 3	Jan. 24		Nov. 2	Nov. 1	...do.....	Female...	

These sheets may be made at home with pen and ink, and tacked up near the bull pen for ready reference. The records can be copied into the herdbook for future reference.

A gestation table is of assistance in calculating the time of calving. The average gestation period is 283 days. If a gestation table is not at hand, a good plan is to count back 3 months from the date of service and add 10 days. Thus, if a cow is bred on February 4, by counting back 3 months and adding 10 days, the calving date will fall about November 14.

TABLE 1.—Gestation table for cows.

Served.	Jan.	Oct.	Nov.	Dec.	Apr.	Jan.	May.	Feb.	June.	Mar.	July.	Apr.	Aug.	May.	Sept.	June.	Oct.	July.	Nov.	Aug.	Dec.	Sept.
Due.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Served.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Due.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Served.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Due.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Served.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Due.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Served.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Due.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Served.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Due.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Served.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Due.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Served.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Due.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Served.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Due.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Served.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Due.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Served.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Due.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Served.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Due.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Served.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Due.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Served.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Due.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Served.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Due.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Served.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Due.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Served.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Due.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Served.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Due.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Served.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Due.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Served.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Due.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Served.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Due.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Served.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Due.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Served.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Due.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Served.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Due.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Served.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Due.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Served.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Due.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Served.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Due.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Served.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
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COST OF KEEP.

The cost of keeping a bull is an important item to consider. The individual farmer will want to know what the cost will be. The question may also come up in connection with bull associations, or other farms of joint ownership. The following table shows the average feed consumption, and other costs, on 95 bulls in Vermont, Indiana, and western Washington. The figures are for an average of two years:

TABLE 2.—*Cost of keeping a bull for one year.*

	Vermont.	Indiana.	Washington.
Concentrates.....pounds..	336	1,399.7	630
Dry roughage.....do....	6,734	4,025.4	5,967
Succulent roughage.....do....	2,396	6,002.8	3,069
Bedding.....do....	269	645.4	43
Pasture.....dollars..	¹ 1.92	4.56	13.56
Labor.....hours..	37.7	35.7	40.4
Total other costs ²dollars..	14.21	29.71	41.81

¹ Acres.

² "Total other costs" includes interest, insurance, bull's share of buildings, depreciation, etc.

A number of factors enter into the cost of keeping a bull. Age, method of feeding, and price of feeds are some of them. From Table 2 one can estimate the amounts of the different kinds of feed, and apply the prices of feed, labor, etc., prevailing in the particular locality.

BUYING AND SELLING.

Most dairymen buy young bulls of breeding age, use them for two years, and then, to avoid inbreeding, sell them. This is not good practice, because in a large number of cases the bulls are sold for slaughter, or knowledge of their whereabouts is lost.

It is often found that the daughters of these bulls are greatly superior to their dams, but the sires have been disposed of before the fact becomes known.

It is better to keep the bulls until production records of their daughters can be compared with records of the dams. If the production records of the daughters are superior, and other considerations warrant, such bulls should be kept in the herd or disposed of in such a way that their services are not lost.

Of course, if the production records of the daughters do not justify keeping the bull as a herd sire, he should be disposed of, preferably for beef.

In order to retain ownership, or use, of prepotent bulls, breeders often lease or lend them for definite periods to other breeders. This may be done also with younger, unproved sires. The kind of contract or lease, and the cash consideration, will depend on conditions. It is advisable to include in the contract, or agreement, a clause specifying proper care and feed, number of services, and health precautions. In special cases, it may be advisable to specify that all the bull's daughters be tested for milk and fat production after they freshen.

In buying a herd bull, one may have a choice of a young animal of breeding age or an older proved or unproved bull. A proved sire must have daughters with production records that can be compared with similar records of their dams. The records of the daughters may be better than those of their dams, or they may not be so good. In general, bulls that have proved to be superior in this respect are comparatively scarce, and when they are available usually command a high price. Then, too, many of these sires are rather old, and may be uncertain breeders, or they may be dangerous to handle. For these reasons many breeders feel that they are justified in buying young, unproved bulls of good type from high-producing ancestry. This certainly is the best practice to follow, if satisfactory proved sires can not be obtained. If care is exercised in their selection, one can usually expect beneficial results from young sires.

It is good practice to inspect bulls before buying. This often saves disappointment, and gives one a knowledge of the conditions under which the animals were raised. In addition, one can usually see the type of the sire and dam, which are important points in selecting bulls. Many satisfactory sales are made by mail, and reputable breeders have built up a considerable business on this plan. Photographs are valuable, but often misleading.

If bulls are shipped a great distance, they usually do not appear to best advantage when received. For this reason, judgment should be withheld until they have had opportunity to recover from the trip. It is a good plan to keep them isolated or away from the herd for some time. Many are purchased subject to a 60 or 90 day retest for tuberculosis, which is a wise precaution. In this case, the matter of isolation is usually specified in the agreement between buyer and seller.

Some dairymen find it difficult to sell their bulls at a profit, while others find it the best-paying part of their business. As a general thing, purebred bulls backed up with high-production records can be disposed of with reasonable profit, if well advertised. This necessitates having the dams tested for milk and butterfat production. Experience has shown that increased prices received for bulls from tested dams often more than pay for the testing.

SHIPPING BULLS.

For shipment by express, put bull in a strong crate, of proper dimensions. Animals may be injured or reach destination in bad condition otherwise, if shipped in poor crates. Figure 10 shows a well-constructed crate.⁶

Sufficient feed for the animal during shipment should be supplied by the shipper, with instructions for feeding and watering written on cardboard and tacked on the crate. A sack of hay and a quantity of grain, if the shipment is long, will meet the needs.

It may be advisable to have the bull insured against all hazards, for a period of from 30 to 60 days, the insurance covering the period of shipment and the time it takes him to get accustomed to new conditions. This insurance often will materially reduce the cost of shipping.

⁶ Plans and bills of material for this crate will be sent free by the Bureau of Agricultural Engineering, United States Department of Agriculture, Washington, D. C., upon request.

COOPERATIVE BULL ASSOCIATIONS.

Many farmers, on account of the small number of cows kept, do not find it profitable to keep a bull for their own use. If they buy

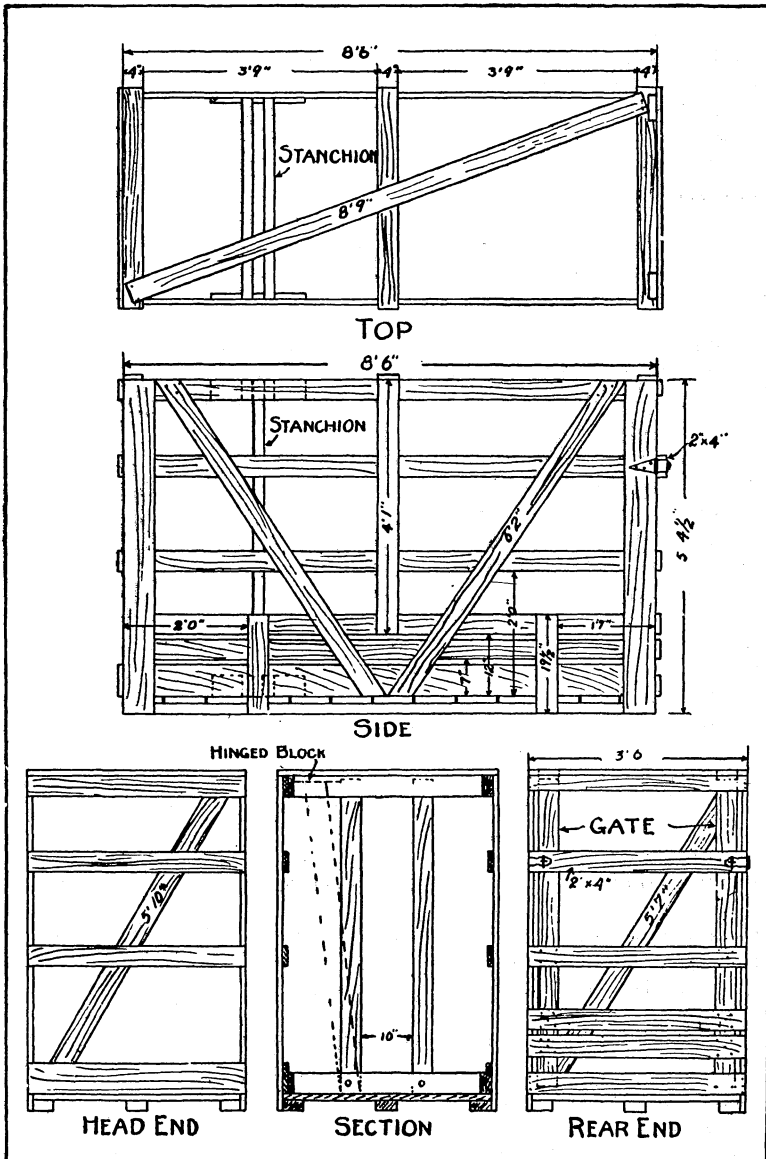


FIG. 10.—Plan of shipping crate. The size can be changed to suit the size of the animal.

a sire, he may be a cheap and inferior animal. These farmers should have the use of good sires without too great expense.

Bull associations are designed primarily to enable these farmers to have an interest in, and the use of, good bulls at a cost within their reach, but many larger breeders also are taking advantage of them.

By this plan, several farmers in a community go together, buy purebred bulls, and use them cooperatively. The association is divided into breeding blocks, and a bull is kept on a farm centrally situated in each block, where the members take their cows to be bred. Every two years, the bulls are shifted from one block to another. This enables the members to obtain the service of high-class bulls for a period of years, limited only by the number of bulls in the association. This plan has been entirely satisfactory, and there are now in the United States 218 such associations, owning 956 purebred bulls.

HANDLING THE BULL.

RINGING.

The ring is a safeguard in handling, and every bull should have one in his nose, even if he is regarded as gentle and easy to handle.

When the bull is between 8 months and a year old, a ring should be put in his nose. A copper ring 2 to 2½ inches in diameter is satisfactory at this time, but it should be replaced by a larger and stronger gun-metal ring when he reaches 2 years of age. Rings are likely to wear out with use and age, and should be replaced. In case of especially unruly bulls, it is well to place two rings in the nose.

The ringing operation is not difficult, and can be done with but little trouble if gone about in the right way. Tie the bull's head fast so he can not jerk. Grasp his nose firmly, with the fingers or a nose lead. (Fig. 11.) Push a trocar, with cannula, through the cartilage that separates the nostrils. Then pull out the trocar, but leave the cannula. Put one end of the opened ring in the cannula, then withdraw the cannula, leaving the ring in the nose. Close the ring and replace the screw in it. File or sandpaper the joint until it is smooth. Do not tie the bull or lead him by the ring until the nose is healed and soreness gone, which will take from a week to 10 days.

Instead of trocar and cannula, some breeders use a sharp pocket-knife with good results. There are also special nose punches on the market.

When the bull is about 2 years of age, replace the original ring with a larger and stronger one.

Occasionally a bull pulls the ring out, tearing his nose. (See fig. 12.) This is usually caused by sudden jerking on a tight rope, being tied too short, or getting the ring caught on something. An accident of this kind is rather serious, as there is no entirely satisfactory way to remedy the condition. In some cases, the ring is placed higher up, or the cartilage is pierced the opposite way and the ring placed in a vertical position. If this is done, it is not advisable to tie the bull by the ring, as it may be torn out again. Smaller rings may be placed on either side of the torn place, with a larger ring through them. This may work all right in some cases, but is not always successful, as the three rings may give the animal considerable trouble in eating, and get caught on things.

If the nose is torn out, the bull should be confined in a stall and pen so arranged that it will not be necessary to handle him a great deal. If he is handled it should be done only with a strong chain or leather halter, which tightens across the nose when the lead rope is pulled. There are special halters on the market designed for cases of this kind.

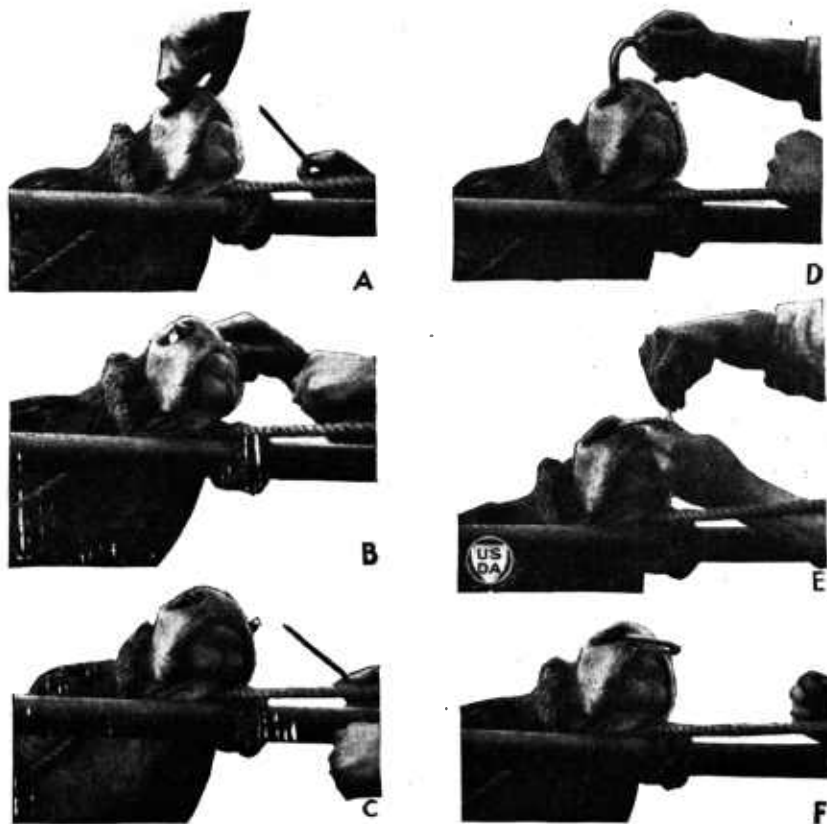


FIG. 11.—Ringing the bull.

HOBBLING.

If the animal is especially vicious, it is often advisable to hobble him when handling, so that if he starts to run or attack he can be thrown to his knees. Some breeders consider this a good method of "gentling." To hobble the bull, put a rope or band around his body, just behind the front legs. Have a loop or ring on this rope or band on each side of his body. Take another longer rope. Run one end through the loop, and tie the end to the pastern of a front leg. One person should lead the animal by a halter, while another holds the rope that is tied to his foot. When the animal starts, a strong, quick pull on the hobble rope usually will bring him to his knees.

THROWING OR CASTING.

It may be necessary, at times, to throw and tie a bull, for various reasons. This can be done with an inch rope—preferably cotton, which is softer and more pliable than hemp. The rope should be 40 to 50 feet long, depending on the size of the animal. One end is looped around the neck and tied with a rigid knot that will not slip. (See fig. 13.)

Two half hitches are then taken around the chest and flank respectively, care being taken that the hitches are well down on the side of the body. By pulling steadily on the free end of the rope, the animal can be thrown. It may be necessary, if the animal is large, to have a second rope attached to one hind



FIG. 12.—Bull from whose nose the ring has been torn out.

foot in order that the foot can be pulled under him, so that he can be rolled over on his side. (See fig. 14.) Have plenty of help

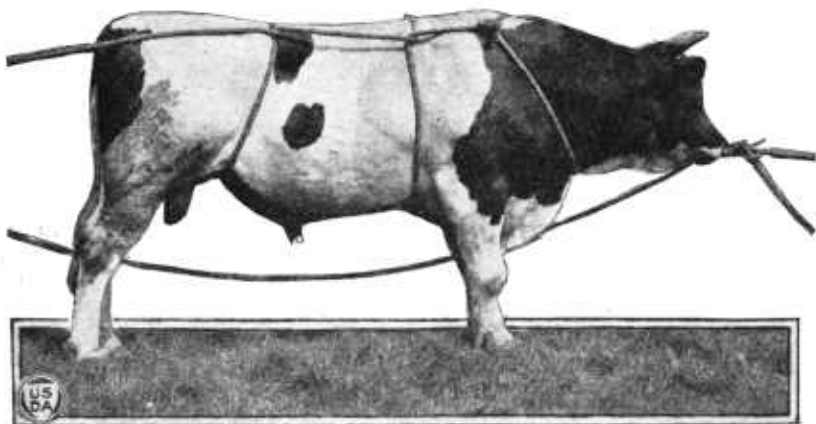


FIG. 13.—Throwing: Method of putting rope on. Half-hitches should be well down on side.

at hand. Figure 15 shows the animal thrown, and his feet being tied.

STOCKS.

Stocks are especially useful for holding bulls for dehorning, trimming the feet, and some other operations. They are strongly built



FIG. 14.—Throwing: Left hind leg is being pulled under body with a second rope, so that the bull can be rolled on left side.

erates into which the animals are led, and securely tied. (See fig. 16.) They should be of strong material, well bolted. The size should be 9 feet long and 6 feet high, with an inside width of 2 feet 4 inches. A heavy iron ring, to which the bull may be tied, is bolted to the floor about 2½ feet in front of the stanchion. A large or a small animal can be accommodated by shifting a heavy timber in slots at the rear made for that purpose.



FIG. 15.—Throwing. Method of holding and tying feet.

Hospital stalls are sometimes constructed on the same principle, with a belt or a sling attached to a pulley above. The slings are

passed under the animal, and his weight can be raised from the floor by means of the pulley and derrick. Then by tying his feet to the floor or uprights, he can be worked on with little danger of his getting loose. It is often difficult, however, to lead large or heavy animals into stocks and hold them there, in which case it may be necessary to throw them.

STAFF FOR LEADING.

The bull, when a calf, should be trained to lead, first with a halter, and later with a staff attached to the ring in his nose. (See fig. 17.) There are a number of good bull staffs on the market. They are equipped with locking devices, so that if properly handled there is little danger of their becoming unsnapped. A hand grip on the end aids materially.



FIG. 16.—Stocks: These may be used for various purposes. Note iron ring bolted to floor in front of stanchion.

CAUTION IN HANDLING.

Always handle a bull in a firm manner and never trust him. It often happens that a man is killed or injured as the result of taking chances. No matter how quiet and gentle a bull has been, he is

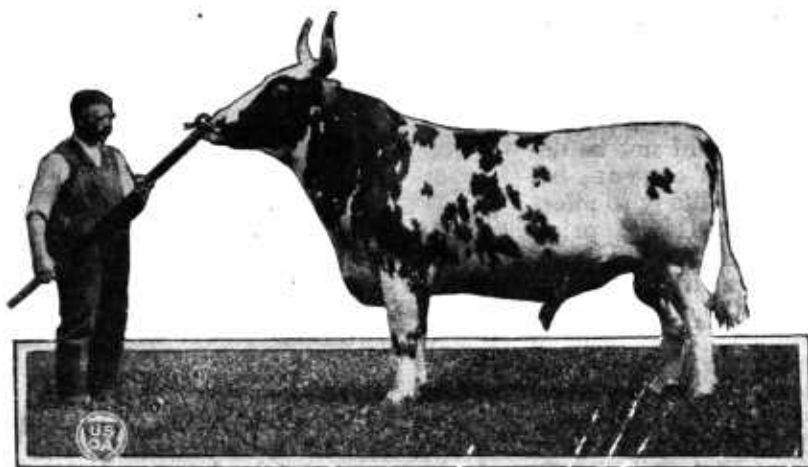


FIG. 17.—Proper way to hold bull with a staff.

likely to be in a bad humor at times. Never take a bull on a public highway, unless he can be kept under absolute control. Many serious

accidents have occurred as a result of allowing so-called gentle bulls to graze along country roads, or driving them to and from pasture

with the cows on public highways. Some States have laws prohibiting these practices.



FIG. 18.—Trimming feet: Cutting out the sole. Note long toes.

FEET AND HORNS.

TRIMMING THE FEET.

Bulls kept in close quarters with little exercise frequently develop long hoofs. This condition is not only unsightly, but may become painful, so much so that the bull can not stand or walk squarely. Then, too, it brings on various other foot troubles, such as foul foot and rot. The hoofs should be trimmed, or they will break off or disfigure the animal's feet. With young animals, this trimming often can be done with a long-handled chisel, while the animal is standing on a hard dirt or plank floor. The sole and the cleft between the claws can not be got at in this way, however, and oftentimes these parts cause the most trouble. In that event it may be necessary to throw and tie the animal.

A pair of pincers, like those used in shoeing horses, comes in handy in clipping off the toe of the hoof, or it can be sawed off with a finetooth saw. A shoeing knife can be used to trim out the sole and dead hoof, and then a rasp to smooth down the surface. (Figs. 18 and 19.) The dewclaws, which often grow to great length, should also be trimmed off fairly close. (Figs. 20 and 21.)

DEHORNING.

In general, bulls to be kept for breeding purposes should not be dehorned as calves, because it is likely to affect their selling price. Breeders, as a rule, prefer bulls with horns. If old bulls are properly handled, it is seldom necessary to dehorn them. Dehorning, however, is often done to make an ugly bull more easy to handle.

The animal preferably should be 2 years old before the horns are taken off; otherwise there is danger that false horns or scurs will develop. It is best to have a veterinarian or other experienced man do the dehorning.⁶



FIG. 19.—Trimming feet: Rasping.

⁶ See Farmers' Bulletin No. 1600, Dehorning, Castrating, Branding, and Marking Beef Cattle.

TRAINING HORNS.

It is often desirable to train the horns of younger bulls, in order to get the shape typical of the breed. The best time to begin is when the bulls are quite young. There are several devices that can be bought or made to suit different kinds of horn development.

TRIMMING AND POLISHING HORNS.

One may want to trim and polish the horns. This can be done with a rasp, pieces of glass, and fine sandpaper. The rasp should be used first to smooth off the dead tissue and uneven places, followed by scraping with the edges of freshly broken glass. The scraping should always be with the grain, and not across. Fine sandpaper should make the horn smooth and ready for polishing. Apply linseed oil and pumice stone, or metal polish, and polish with flannel cloth or chamouis skin.



FIG. 20.—Trimming feet: Note the long dewclaws.

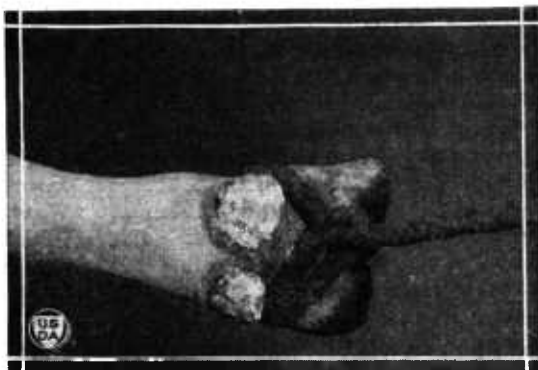


FIG. 21.—Trimming feet: Dewclaws properly trimmed.

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